

WHAT IS CLAIMED IS:

- 1 1. A switching device for selectively applying one of two different
2 voltage supplies to a common node, a first of said voltage supplies being coupled to said
3 common node by a first switch and a second of said voltage supplies being coupled to said
4 common node by a second switch, said switching device comprising:
5 (a) a feedback network comprising a high-pass filter that filters a
6 signal at said common node and that outputs said signal having been filtered as a feedback
7 signal;
8 (b) a timing controller coupled to at least one of said first and
9 second voltage supplies, that determines when to switch between said first and second voltage
10 supplies;
11 (c) a ring switch controller that applies a first control signal to said
12 first switch for selectively enabling and disabling said first switch in response to said timing
13 controller and said feedback signal; and
14 (d) a battery switch controller that applies a second control signal to
15 said second switch for selective enabling and disabling said second switch in response to said
16 timing controller and said feedback signal.
- 1 2. A switching device as defined in claim 1, wherein said first voltage
2 supply is an alternating current (AC) voltage supply and said second voltage supply is a direct
3 current (DC) voltage supply.
- 1 3. A switching device as defined in claim 2, wherein said timing
2 controller is coupled to said AC voltage supply.
- 1 4. A switching device as defined in claim 3, wherein said timing
2 controller is further coupled to said DC voltage supply and said common node.
- 1 5. A switching device as defined in claim 3, wherein said first switch
2 comprises two serially coupled transistors.
- 1 6. A switching device as defined in claim 3, wherein said second switch
2 comprises two serially coupled transistors.

- 1 7. A method of selectively switching between two different voltage
2 supplies supplying a common node, a first of said voltage supplies being coupled to said
3 common node by a first switch and a second of said voltage supplies being coupled to said
4 common node by a second switch, said method comprising the steps of:
- 5 (a) receiving a request to switch between said first and second
6 voltage supplies;
- 7 (b) gradually removing one of said voltage supplies coupled to said
8 common node;
- 9 (c) gradually applying an other of said voltage supplies; and
10 (d) filtering a signal at said common node for detecting noise.
- 1 8. A method as defined in claim 7, further comprising the step of:
2 adjusting a rate of at least one of said step (b) and said step (c) in response to
3 said signal being filtered, for reducing said noise being detected.
- 1 9. A method as defined in claim 8, wherein said first and second voltage
2 supplies are gradually applied and removed over a period of one half of a ring cycle.
- 1 10. A method as defined in claim 8, wherein said step of gradually
2 applying said other of said voltage supplies does not begin until said step of gradually
3 removing said one of said voltage supplies is complete.
- 1 11. A method as defined in claim 10, wherein said step of gradually
2 removing said one of said voltage supplies is complete when a predefined target is achieved.
- 1 12. A method as defined in claim 11, wherein said predefined target
2 corresponds to a complete removal of said one of said voltage supplies.
- 1 13. A method as defined in claim 10, wherein said first voltage supply is an
2 alternating current (AC) voltage supply and said second voltage supply is a direct current
3 (DC) voltage supply.

1 14. A method as defined in claim 13, wherein said step of gradually
2 removing said one of said voltage supplies comprises gradually turning off one of said first
3 and second switches that is associated therewith.

1 15. A method as defined in claim 13, wherein said step of gradually
2 applying said one of said voltage supplies comprises gradually turning on one of said first and
3 second switches that is associated therewith.

1 16. A method as defined in claim 13, wherein a feedback network for
2 filtering said signal is enabled for switching to said AC voltage supply and disabled after
3 switching to said DC voltage supply.

1 17. A method as defined in claim 13, wherein a feedback signal is used for
2 adjusting a rate at which said AC voltage supply is applied and removed from said common
3 node.

1 18. A method as defined in claim 8, further comprising the step of:
2 gradually disabling a filter used for said step of filtering.

1 19. A method as defined in claim 18, wherein said filter is gradually
2 disabled after switching from an AC voltage supply to a DC voltage supply and back.

1 20. A method as defined in claim 18, wherein said filter is gradually
2 disabled after each switch between said first and second voltage supplies.